

**CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM  
STATEMENT OF INVESTMENT POLICY**

**FOR  
INTERNALLY MANAGED GLOBAL EQUITY INDEX FUNDS – INTERNALLY  
MANAGED**

**August 15, 2005~~March 17, 2008~~**

*This Policy is effective immediately upon adoption and supersedes all previous Equity Index Funds – Internally Managed and Dynamic Completion Fund – Internally Managed policies.*

**I. PURPOSE**

The CalPERS Total Fund Statement of Investment Policy, adopted by the CalPERS Investment Committee ("Committee"), sets forth CalPERS' overarching investment purposes and objectives with respect to all its investment programs.

This document sets forth the investment policy ("~~the~~ Policy") for the Internally Managed Equity Index Funds - ("~~the~~ Funds" or "~~the~~ Portfolios"). Throughout this Policy, Funds and Portfolios are used interchangeably. The design of this Policy ensures that the investors, managers, consultants, and~~or~~ other participants selected by the California Public Employees' Retirement System ("CalPERS~~the System~~") take prudent and careful action while managing the funds. Additionally, use of this Policy ~~provides assurance that there is~~assures sufficient flexibility in ~~managing~~controlling investment risks and ~~capturing~~returns associated with the Funds~~this segment of investments~~.

**II. STRATEGIC OBJECTIVE**

Obtaining broad equity market exposure achieved by closely tracking the designated benchmark indices is the strategic objective of the Funds.

The Funds shall be managed to accomplish the following:

1.A. Enhance CalPERS~~the System's~~ total return;

2.B. Hedge against active (pre-retirement) liabilities; and,

3.C. Provide diversification to CalPERS~~the System's~~ overall investment program; and

4. Consider solely the interest of the System's participants and their beneficiaries in accordance with California State Law. [This language is contained in the Total Fund Statement of Investment Policy.]

### III. RESPONSIBILITIES AND DELEGATIONS

~~A. The **System's Investment Committee** ("the Investment Committee") is responsible for approving and amending the Policy. The Investment Committee delegates the responsibility for administering the Funds portion of the System to the Investment Staff through the Delegation of Authority (Delegation No. 89-13 and 95-50).~~

AB. ~~The CalPERS' Investment Staff ("the Staff") duties include, but are not limited to,~~is responsible for the following:

1. All aspects of portfolio management including monitoring, analyzing, and evaluating performance relative to the appropriate benchmark. Developing and recommending the Policy to the CalPERS Investment Committee;
2. Reporting internally to senior management concerning the implementation of this Policy. Staff reports will be prepared monthly to include, but not be limited to the following:
  - a. Current market value of the Portfolios;
  - b. Performance of the Portfolios versus the benchmarks as reported by the master custodian; and
  - c. Performance attribution analysis that accredits return to its causes.
32. Reporting to the Committee as needed about the performance of the Funds. The General Pension Consultant is responsible for reporting quarterly to the Committee, as described in section III.B. Maintaining procedure manuals, which are subject to periodic review and updates, outlining Staff operational procedures used in implementing this Policy;
43. Monitoring the implementation of, and compliance with, the Policy. Staff shall report material concerns, problems, changes, and all violations of Policies at the next Committee meeting, or sooner if deemed necessary. These reports shall include explanations of the violations and appropriate recommendations for corrective action. Implementing and adhering to the Policy;
- ~~4. Reporting immediately to the Investment Committee all violations of the Policy with explanations and recommendations;~~

5. Purchasing only securities that are outlined in this Policy; and
6. Reporting internally to senior management, and to the Investment Committee as needed, on the implementation of this Policy. These reports will be prepared monthly to include, but is not limited to the following:
  - a. Current market value of the Portfolios;
  - b. Performance of the Portfolios versus the benchmarks as reported by the master custodian; and
  - c. Performance attribution analysis which accredits return to its causes.

B. C. The General Pension Consultant (“General Pension Consultant”) is responsible for:

m Monitoring, evaluating, and reporting quarterly, to the Investment Committee, at least quarterly, on the performance of the Funds relative to the benchmarks and p Policy guidelines. The General Pension Consultant is responsible for reporting any non-compliance issues in accordance with its responsibilities under with its contract with CalPERS with the System.

Monitoring shall include placing the Funds on Watchlist Status using the following criteria:

1. Domestic Equity Index Watchlist Status: If the realized annual return deviation is less than -70 basis points for two consecutive quarters, and the forecasted tracking error is greater than 50 basis points, then the Portfolio will be eligible for watchlist.

2. Domestic Microcap Index Watchlist Status: If the realized annual return deviation is less than -500 basis points for two consecutive quarters, and the forecasted tracking error is greater than 300 basis points, then the Portfolio will be eligible for watchlist.

3. International Equity Index Watchlist Status: If the realized annual return deviation is less than -60 basis points for two consecutive quarters, and the forecasted tracking error is greater than 25 basis points, then the Portfolio will be eligible for watchlist.

#### IV. PERFORMANCE OBJECTIVES AND BENCHMARK

##### A. Performance Objective

Achieving the return for the broad equity market is the performance objectives of the Funds. To accomplish ~~this~~<sup>these</sup> objectives, using statistical models to approximate the return of the market, rather than replicate, may be more cost effective.

Return deviations between the Portfolios and the designated benchmarks ~~are expected to~~<sup>will be</sup> random, ~~as expected~~. To account for the difference in the methodology for calculating the returns of the benchmarks and the Portfolios, the resulting return deviation may require an adjustment. ~~CalPERS~~<sup>The System</sup> shall set parameters in the statistical models it employs in such a manner that tracking error shall be within the following thresholds:

1. Domestic Equity Index: Forecasted tracking error shall be within  $\pm$  50 basis points; realized returns should fall no more than 50 basis points below the benchmark over any 12 month period.
2. Domestic Microcap Index: Forecasted tracking error shall be within  $\pm$  300 basis points; realized returns should fall no more than 300 basis points below the benchmark over any 12 month period.
3. International Equity Index: Forecasted tracking error shall be within  $\pm$  25 basis points; realized returns should fall no more than 25 basis points below the benchmark over any 12 month period.
4. Dynamic Completion Fund: Forecasted tracking error shall be within  $\pm$  150 basis points; realized returns should fall no more than 150 basis points below the benchmark over any 12 month period.

~~The System shall allow wider tracking error and return deviation when they result from a deliberate decision to reduce turnover or to control a specified risk contained in the Portfolios.~~

## B. Benchmark

Independent sources are responsible for maintaining the benchmarks as well as calculating and reporting the return of the benchmarks to ~~CalPERS~~<sup>the System</sup>.

- A.1. Domestic: The benchmark for the Fund shall be entitled the "CalPERS Custom Dow Jones Wilshire 2500 Index". This custom benchmark shall be constructed and maintained by Wilshire Associates. It shall be defined as the top 2500 securities of the Dow Jones Wilshire 5000 (excluding REITS and tobacco stocks) with dividends reinvested, and be based on market capitalization and annual reconstitution. Its composition shall provide broad

market exposure to the total U.S. equity market while minimizing transaction costs.

2. Domestic Microcap: The benchmark for the Fund shall be entitled the “[CalPERS Custom Dow Jones Wilshire Microcap Index](#)”. This custom benchmark shall be constructed and maintained by Wilshire Associates. It shall be defined as the Dow Jones Wilshire 5000 (excluding REITS and tobacco stocks) less the CalPERS Custom Wilshire 2500 Index stocks with dividends reinvested, and be based on market capitalization and annual reconstitution. Its composition shall provide the remaining exposure to the total U.S. equity market that the CalPERS Custom Dow Jones Wilshire 2500 Index omits.
3. International: The benchmark for the Fund shall be entitled the “~~CalPERS Financial Times Stock Exchange (FTSE) All World, Developed, ex US, ex Tobacco,~~ [Capitalization Weighted](#) Index”. ~~The markets included are limited to the countries in the System’s Permissible Country Equity Policy and is calculated on an unhedged basis.~~

4. Dynamic Completion: The benchmark shall be entitled the “CalPERS Custom DCF Benchmark” (“Benchmark”). A nationally recognized vendor experienced in constructing benchmarks shall develop and maintain this custom benchmark. Its construction shall be a function of the style and market capitalization biases generated by the Active Domestic Equity managers in the aggregate. The Benchmark shall complement the above-mentioned biases.

The Benchmark shall vary with time as changes occur in the active manager program. Changes to the program include alteration in the allocation to managers, the addition or deletion of managers, or changes in the active manager’s benchmark as the market goes through its cycle. Consequently, the Benchmark may have risk exposures that differ significantly from CalPERS Custom Dow Jones Wilshire 2500 Index. Additionally, the composition of the Benchmark shall reflect the liquidity constraints encountered by large funds such as CalPERS.

## **V. INVESTMENT APPROACHES AND PARAMETERS**

### **A. Investment Approaches**

The Portfolios shall be managed in a structured fashion to achieve the stated performance objective. Structured investing can be achieved through replication or through an optimized, [sampled](#) approach to

generate an actual Portfolio with risk characteristics closely resembling the benchmark. The actual implementation used for each Portfolio will be dependent on the specific characteristics of the applicable benchmark. A benchmark with a broader number of constituents and greater exposure to small capitalization securities will typically not be replicated due to liquidity and trading cost considerations.

Where an [optimization](#) approach is employed, a statistical risk model is used to define and decompose the Portfolio's risk exposures versus those of the benchmark. [Fundamental risk models](#) measure stock returns associated with industry and other fundamental factors such as domicile, [price/earnings](#) (P/E), yield, and [market capitalization](#). Such fundamental factors are referred to often as "[common](#)" factors".

A common factor is an element of return that influences many securities and, hence, is a "common factor" in the returns on those securities. Based on the current Portfolio's exposure to country, industry, and common factors, the volatility of returns can be estimated. The information about volatility produced by a fundamental risk model can be used to evaluate Portfolio risk, decompose Portfolio risk according to common factor exposures, and evaluate how much of a Portfolio's return in a given period was due to each common factor exposure and how much was due to stock selection.

## **B.Tracking**

Maintaining a Portfolio's risk characteristics in line with the benchmark can minimize return deviation. A stock market index is a purely mathematical construction. Its performance will inevitably be different from that of any actual Portfolio. This is generally because indices are constructed in mathematically sound ways that can never, in practice, be replicated. The following list highlights technical reasons why a Portfolio will not perfectly track a benchmark index:

1. The index is fully invested at all times. An actual Portfolio will inevitably carry minimal cash equivalents.
2. Transaction costs are incurred while investing cash flow, [rebalancing](#) the index fund exposure to meet asset allocation requirements, meeting index reconstitution and income reinvestment requirements.
3. Dividends are treated in an unrealistic way. The index assumes the dividend becomes available as soon as a stock goes ex-dividend and, thus, earns the equity rate of return. The dividend may not actually be received into the Portfolio for several weeks.

4. The System's custodian and the index vendor's calculation methodologies may differ slightly, resulting in slightly differential performance.

5. The reconstitutions of the benchmarks cause turnover but no transaction costs are imputed in the index calculations. In order to minimize transaction costs in the Portfolios, transitions to the reconstituted benchmarks may be done gradually rather than in one day. Some securities which are deleted from the benchmark may be retained in the Portfolio to minimize transaction cost if they generate little or no expected tracking variance.

Because the Portfolio must incur transaction costs to purchase and sell securities, a trade-off must be made between incurring transaction costs and minimizing forecast tracking error. Since transaction costs are always negative and will reduce the value of the Portfolio, while tracking error can be positive or negative, consideration will be given to accepting greater return deviation.

6. Some corporate actions and index reconstitution effects cannot be replicated perfectly due to timing and / or market constraints.

#### **BC.** **Specific Risk Parameters**

Specific risk parameters shall limit the return deviation of the Portfolio versus the benchmark. Use of a A-number of different models shall ensure that the risk parameters are within an acceptable tolerance level to achieve the performance objectives. Since CalPERSthe System mayshall add or eliminate models, the specific risk parameters for each model are detailed in the Procedures Manuals.

Implementation of this program shall comply at all times with CalPERSthe System's investment policies including, but not limited to, the following:

1. Emerging Equity Markets Principles Permissible Country Equity Policy;

2. Foreign Exchange Guidelines;

23. Statement of Investment Policy: Development of Derivatives – Strategies Investment Office; and

34. Proxy Voting Policies.

#### **DC.** **Restrictions**

- ~~1. Individual security positions are normally limited to no more than 5% of the outstanding shares for the security. In unusual situations, a security position may exceed the 5% limit if the expected selling cost would materially impact the tracking objectives. In no instance shall a security position greater than 10% of the shares outstanding be maintained.~~
2. The Portfolio may not purchase the securities of primary tobacco companies as identified by the Investor Responsibility Research Center Tobacco Company List.

**ED. Permissible Securities**

1. Equity and associated securities of global publicly traded companies.
2. The Portfolio may hold securities not represented in the designated benchmark. Generally, these holdings in aggregate shall be limited to less than 3% of the Portfolio's total market value. Such holdings are justified by the following reasons:
  - a. Liquidity constraints or excessive transaction costs, such as those required to sell certain securities obtained from corporate actions or from past benchmark reconstitutions; or
  - b. Are held as a proxy for a benchmark asset that is illiquid or unavailable; or
  - c. Expectation of inclusion in the benchmark at the next reconstitution.
3. Derivatives, as detailed in Section VII.

**FE. Corporate Actions**

Corporate actions (e.g., [tender offers](#), [mergers](#), [Dutch-auctions](#), or [spin-offs](#)) shall be handled on a case-by-case basis.

Companies which offer discount [Dividend Reinvestment Programs](#) (DRIP) and similar programs will be analyzed to determine if return enhancement can be added by participating in such programs.

**GF. Rebalancing and Trading Activity**



The rebalance decision for any Portfolio is primarily based upon analysis of risk and potential performance deviation from the benchmark. Portfolio rebalancing shall be performed as necessary to maintain the Portfolio's risk characteristics in accordance with those of the benchmark. At a minimum, the Portfolio shall be reviewed ~~at reconstitutions or monthly~~ and at reconstitutions. The Portfolios will be analyzed to reduce systematic and nonsystematic risk while minimizing transaction costs.

A variety of trading techniques and liquidity sources shall be utilized to obtain best execution of the approved trade list.

Transaction cost analysis shall be performed and evaluated on a quarterly basis for monitoring trading efficiency as compared to that of a like universe. An outside vendor may prepare this analysis.

#### **HG.** **Strategy Monitoring Attribution Analyses**

A monthly reporting package shall be prepared for each strategy by the Internal Equity staff assigned to manage the strategy. The reports to be included shall be those needed and appropriate to allow monitoring by more senior Internal Equity staff of the management process, risk acceptance and performance of each strategy. This reporting package may vary depending on the management process, benchmark and performance objective unique to each strategy and shall be described in the procedures manual.

The Consultant shall include strategy level information in their quarterly report to the Committee.

#### **1.** **Performance Attribution Report**

~~A performance attribution report concerning the Fund shall be generated monthly to ascribe performance to common factors, economic or industry sectors, and stock selection. Returns shall be analyzed to determine where performance is derived and if any appropriate adjustments should be made to the Portfolio.~~

#### **2.** **Risk Attribution Summary**

~~A risk attribution report shall be generated monthly displaying the total, systematic, and non-systematic risk of the Portfolio relative to the benchmark. Risk characteristics of the Portfolio relative to that of the benchmark can be analyzed to determine if any imbalances exist and if appropriate adjustments should be made to the Portfolio.~~

3. ~~Bias Performance Report~~

~~A bias performance report shall be generated within the month to display the Portfolio's performance versus that of the benchmark month-to-date. This report shall show how each economic or industry sector of the Portfolio is performing relative to that of the benchmark. The report shall also show how each stock within the Portfolio is performing relative to the stock's weighting within the benchmark.~~

4. ~~Over / Under Weighting Report~~

~~An over/under weight report shall be generated monthly displaying stocks with weights five basis points or greater than the benchmark weight. These stocks shall be screened and evaluated for possible action to decrease/or increase the security's weight in the Portfolio towards the benchmark weight.~~

VI. CALCULATIONS AND COMPUTATIONS BENCHMARK

Investors, managers, consultants, and other participants selected by CalPERS shall make all calculations and computations on a market value basis as recorded by CalPERS' Custodian.

~~Independent sources are responsible for maintaining the benchmarks as well as calculating and reporting the return of the benchmarks to the System.~~

~~1.Domestic: The benchmark for the Fund shall be entitled the "CalPERS Custom Wilshire 2500 Index". This custom benchmark shall be constructed and maintained by Wilshire Associates. It shall be defined as the top 2500 securities of the Wilshire 5000 (excluding REITS and tobacco stocks) with dividends reinvested, and be based on market capitalization and annual reconstitution. Its composition shall provide broad market exposure to the total U.S. equity market while minimizing transaction costs.~~

~~2.Domestic Microcap: The benchmark for the Fund shall be entitled the "CalPERS Custom Wilshire Microcap Index". This custom benchmark shall be constructed and maintained by Wilshire Associates. It shall be defined as the Wilshire 5000 (excluding REITS and tobacco stocks) less the CalPERS Custom Wilshire 2500 Index stocks with dividends reinvested, and be based on market capitalization and annual reconstitution. Its composition shall provide the remaining exposure to the total U.S. equity market that the CalPERS Custom Wilshire 2500 Index omits.~~

~~3.International: The benchmark for the Fund shall be entitled the "CalPERS Financial Times Stock Exchange (FTSE) All World, ex US, ex Tobacco,~~

~~Capitalization Weighted Index". The markets included are limited to the countries in the System's Permissible Country Equity Policy and is calculated on an unhedged basis.~~

## **~~VII. GENERAL~~**

~~Investors, managers, consultants, or other participants selected by the system shall make all calculations and computations on a market value basis as recorded by the System's Custodian.~~

## **VIII. DERIVATIVES AND LEVERAGE POLICY**

### **A. Strategies**

The Fund may utilize financial futures, equity swaps and options in the Portfolio for the following purposes:

1. Permitting the investment of dividends received;
2. Equitizing cash and dividends receivable;
3. Allowing adjustment of the Portfolio's risk characteristics in the most cost effective manner available;
4. Facilitating investment of cash flows related to contributions, withdrawals, or asset allocation compliance.

### **B. Justification**

Justification for the above mentioned strategies includes the following:

1. ~~Comparing~~Reducing lower transaction costs in comparison with the purchase of underlying securities;
2. Equitizing non-spendable cash exposures (e.g. dividend accruals) to get a highly correlated return on that component of the Portfolio;
3. Providing the ability to alter risk characteristics versus the benchmark without disrupting the underlying Portfolio or unnecessarily increasing turnover; and
4. Obtaining matched returns between the benchmark and the Portfolio through investment in custom equity swaps and currency forwards.

### **C. Restrictions**

Restrictions on the above mentioned strategies include the following:

1. Writing uncovered calls is prohibited;
2. Leveraging is prohibited. The use of futures contracts as specified in this Policy will not constitute leverage;
3. With the exception of equity swaps and currency forwards, trading non-exchange traded derivatives is prohibited;
4. Speculating is prohibited;
5. Use of non-CFTC approved futures contracts is prohibited; and
6. Portfolio specific position limits will be established and monitored as detailed in the applicable procedures manual.

#### **D. Permissible Derivatives**

Derivatives utilized in the index Portfolio may include, but are not limited to the following:

1. Index futures;
2. Style futures;
3. Index options;
4. Currency forwards; and
5. Equity swaps;
6. Exchange Traded Funds (ETF); and
7. Closed End Funds.

#### **E. Futures Commission Merchants (FCM)**

Futures Commission Merchants are selected with the following broad range of criteria:

1. Low cost clearing and executing charges;
2. Securely capitalized firm;

3. Clear account statements and efficient reconciliation;
4. Responsive personnel;
5. Discrete and efficient operation;
6. Personal interview; and
7. Reference checks.

## **IX.VIII. GLOSSARY OF TERMS**

Definitions for ~~Key~~ words used in this policy are defined located in the Equity Glossary of Terms which is included in CalPERS' the System's Master Glossary of Terms.

### Domestic Equity Index Fund – Internally Managed

Adopted by the Investment Committee: September 16, 1996  
Revised by the Policy Subcommittee: May 13, 1999  
Adopted by the Investment Committee: August 16, 1999  
Revised by the Policy Subcommittee: December 8, 2000  
Adopted by the Investment Committee: March 19, 2001

### Name ~~e~~Changed to Equity Index Funds – Internally Managed

Revised by the Policy Subcommittee: March 11, 2005  
Adopted by the Investment Committee: April 18, 2005  
Revised by the Policy Subcommittee: June 10, 2005  
Adopted by the Investment Committee: August 15, 2005

### Name Change to Internally Managed Global Equity Index Funds (incorporates DCF Policy)

Revised by the Policy Subcommittee: March 17, 2008

## Asset Class Glossary: Equities

Policy: Internally Managed Global Equity Index Funds – ~~Internally Managed~~  
March 17, 2008

### **Active Management**

An investing strategy that seeks to outperform the broad market benchmark by creating a portfolio that is different from the broad market benchmark. In equities, this is usually accomplished by overweighting and underweighting specific sectors or securities relative to the benchmark.

### **Benchmark**

A set of securities with associated weights that provides a passive representation of a market segment. A benchmark's return is often used as a comparative measure of a manager's performance results in an active portfolio.

### **CalPERS Custom ~~Dow Jones~~ Wilshire 2500 Index**

The ~~Dow Jones~~ Wilshire 2500 Index, excluding ~~Real Estate Investment Trusts (REITs)~~ and tobacco stocks, and with dividends reinvested. The standard Dow Jones Wilshire 2500 comprises the top 2500 securities of the Dow Jones Wilshire 5000 Index, including excluding ~~Real Estate Investment Trusts~~ and tobacco stocks, based on market capitalization, and is reconstituted annually. The Dow Jones Wilshire 5000 is an index that measures the performance of all U.S.-headquartered equity securities with readily available price data.

### **CalPERS Custom Wilshire Microcap Index**

The benchmark is based on the Wilshire 5000 index excluding ~~Real Estate Investment Trusts (REITs)~~ and tobacco stocks, less the CalPERS Custom Wilshire 2500 Index. This benchmark uses market capitalization and has annual reconstitution with dividends reinvested. Exposure to the universe of the smallest U.S. securities is obtained with this benchmark.

### **Capitalization Weighted**

A weighting method based on the equity market capitalization of a stock. Market capitalization is calculated by multiplying the total outstanding shares of a stock by its price per share.

### **Closed End Funds**

These are mutual funds professionally managed by an investment company with a finite number of shares issued. Closed end funds may be considered to be a derivative instrument as a component of their unit valuation is derived from the underlying value of the investments held by the fund.

### **Commodities and Futures Trading Commission (CFTC)**

An agency of the U.S. federal government that regulates the U.S. commodity futures and options markets. The CFTC is responsible for insuring market integrity and

protecting market participants against manipulation, abusive trading practices, and fraud.

### **Common Factor**

An element of return that influences many securities and, hence, is a "common factor" in the returns on those securities. By virtue of their common influence on many stocks, common factors contribute to market return as well as residual returns of the stocks that they influence most. Some common factors for domestic equity are capitalization, beta, price/earnings, price/book, interest sensitivity, and yield.

### **Corporate Actions**

An action taken by a company that causes a material change in structure including, but not limited to, name, price, shares, capitalization, or other such events. Typical corporate actions include tender offers, mergers, Dutch auctions, and spin-offs.

### **Custodian**

A bank or other financial institution that provides custody or safe keeping of stock certificates and other assets of an institutional investor.

### **Derivative**

An instrument whose value is based on the performance of an underlying financial asset, index, or other investment. Classes of derivatives include futures contracts, options, currency forward contracts, swaps, and options on futures.

### **Dividend Reinvestment Program**

A plan offered by a corporation in which shareholders may purchase additional shares with cash dividends on the dividend payment date. Often times the additional shares are sold at a discount and are commission free.

### **Dutch-Auction**

A system in which the price of an item is gradually lowered until it meets a responsive bid and is sold.

### **Dynamic Completion Fund**

A portfolio custom designed to control the misfit present in a plan sponsor's investment program.

### **Earnings/Price Ratio**

The relationship of earnings per share to current stock price. The stock's trailing 12 months of reported earnings is often used as the earnings per share figure.

### **Equity Swaps**

An agreement between two parties dictating a swap with payments on one or both sides, linked to the performance of equities or an equity index.

### **Exchange Traded Fund**

An exchange-traded fund (ETF) is an investment company that is legally classified as an open-end company or a Unit Investment Trusts. An ETF is not classified as a mutual fund by the Securities and Exchange Commission because of limited redeemability. A typical ETF is similar to an index fund, and will invest in either all of the securities of a selected index or a representative sample of the securities included in the index. An ETF may be considered to be a derivative instrument as a component of their unit valuation is derived from the underlying value of the investments held by the fund.

### **Forecasted Tracking Error**

The expected or ex ante annualized standard deviation of the difference between the a return, defined as the average of the model estimates of at least two providers.

### **Fundamental Risk Model**

A model used to predict the risks of individual stocks using fundamental and technical information. A covariance matrix is constructed from the factor's standard deviations and the correlations between one another. This covariance matrix can be used to predict the risk characteristics of a portfolio.

### **Futures**

Exchange-traded contracts to buy or sell a standard quantity of a given instrument, at an agreed price, and date. A future differs from an option in that both parties are obliged to abide by the transaction. Futures are traded on a range of underlying instruments including commodities, bonds, currencies, and stock indices.

### **Hedge (Hedging)**

A strategy used to offset investment risk. A perfect hedge is one eliminating the possibility of future gain or loss.

### **Leverage**

A condition where a portfolio's market obligation may exceed the market-value-adjusted capital commitment by the amount of borrowed capital (debt).

### **Market Capitalization**

A stock's current market price multiplied by the current common shares outstanding.

### **Merger**

The combination of two or more companies. Strictly speaking, only combinations in which one of the companies survives as a legal entity are called mergers.

### **Nonsystematic Risk**

That part of a total return that cannot be explained by a single- or multi-factor model of returns. Such components of return can be diversified away in a sufficiently large and well-diversified portfolio.



## **Optimization**

The best solution among all solutions available for consideration. Constraints on the investment problem limit the region of solutions that are considered and the objective function for the problem by capturing the investor's goals correctly, providing a criterion for comparing solutions to find the better ones. The optimal solution is the solution among those admissible for consideration that has the highest value of the objective function.

## **Option**

Contracts that give the purchaser the right, but not the obligation, to buy or sell an underlying instrument at a certain price (the exercise or strike price) on or before an agreed date (the exercise period). For this right, the purchaser pays a premium to the seller. The seller (writer) of an option has a duty to buy or sell at the strike price, should the purchaser exercise his right.

## **Performance Attribution**

The process of attributing portfolio returns to causes. It decomposes past performance into separate components or factors contained within a multi-factor model.

## **Rebalancing**

The process of modeling a portfolio through an optimizer or other portfolio construction method to generate a trade list that better aligns a portfolio with its investment objective. ~~obtain roughly equal buy and sell trade lists.~~

## **Reconstitution**

The periodic reformulation of a benchmark index which may entail the addition or deletion of securities along with changes to the parameters which determine the relative weight of included assets.

## **Return Deviation**

The difference between the total return of a portfolio and the total return of the benchmark index.

## **~~Risk Attribution~~**

~~The process of decomposing total risk and attributing it among the factors contained within a multi-factor model.~~

## **Sampling**

A method of indexation whereby a representative sample of the index constituents, rather than every share in the index, are purchased.

## **Specific Risk**

That component of total risk that is unique or idiosyncratic to an individual security.

**Speculation**

Assumption of risk in anticipation of gain but recognizing a higher than average possibility of loss.

**Spin Offs**

Companies which are created by separation from ~~derived from other~~ another companies and begin to trade publicly on their own.

**Systematic Risk**

That portion of total risk ~~return~~ that stems from exposure to the market in general and cannot be eliminated by diversification. ~~can be explained by a single or multi-factor model of returns. Such components of return are directly proportional to the market's return and cannot be eliminated by diversification.~~

**Tender Offer**

An public offer to buy all or a portion of a specific securities ~~ies~~ for cash, other securities, or both.

**Tracking Error**

The annualized standard deviation of the difference between the total return of the portfolio and the total return of the benchmark. The term tracking error is frequently used to describe return deviation, the total return of a portfolio, minus the total return of a benchmark index.

**Uncovered Calls**

A strategy in which an investor writes (sells) call options on the open market without owning the underlying security. This stands in contrast to a covered call strategy, where the investor owns the security shares that are eligible to be sold under the options contract.

**Variance**

A statistical term for the variability of a random variable about its mean. The variance is defined as ~~the sum of the squares of the deviation from the mean.~~